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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,140	11/26/2001	Kenji Nakano	7217/65967	8592

530 7590 10/20/2006

LERNER, DAVID, LITTENBERG,  
KRUMHOLZ & MENTLIK  
600 SOUTH AVENUE WEST  
WESTFIELD, NJ 07090

EXAMINER

JONES, HEATHER RAE

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 10/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/994,140	Applicant(s) NAKANO ET AL.	
	Examiner Heather R. Jones	Art Unit 2621	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 August 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2001 and 01 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed August 1, 2006 have been fully considered but they are not persuasive.

The Applicant argues on page 9, lines 7-12 that there is no indication that the reference discloses Applicants' sound-image localization processing means for changing a sound-image localized position of the audio signal reproduced by the acoustic transducers in accordance with the orientation of the head of the user. The Examiner respectfully disagrees. Rallison et al. discloses the user's orientation and/or movements of the user's head can be used to provide a simulated environment to the user (col. 2, lines 18-26). The definition of "environment" according to Merriam-Webster's Collegiate Dictionary Tenth Edition is the circumstances, objects, or conditions by which one is surrounded. Therefore, sound would be included in the definition of environment because sound surrounds everyone. Therefore, the claim limitations have been met and the rejection is maintained.

### ***Claim Rejections - 35 USC § 102***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Rallison et al. (U.S. Patent 6,369,952).

Regarding claim 1, Rallison et al. discloses an audio and video reproduction apparatus, comprising: a head-mounted display for converting a video signal into an image to present to a user (Figs. 1 and 17A; abstract); a pair of acoustic transducers each used for converting an audio signal into a sound to present to the user (52a and 52b); detection means for detecting an orientation of the head of the user (100); image-changing means for changing the video signal supplied to the head-mounted display in accordance with the orientation of the head of the user (col. 17, lines 23-30); and sound-image localization processing means for changing a sound-image localized position of the audio signal reproduced by the acoustic transducers in accordance with the orientation of the head of the user (505 and 503) (Fig. 17A displays audio inputs and outputs going to the right and left ear, therefore simulating the environment according to the user's orientation – col. 17, lines 23-30).

Regarding claim 2, Rallison et al. discloses all the limitations as previously discussed with respect to claim 1 including that the pair of acoustic transducers are one of headphones mounted on the head of the user and a pair of earphones attached to ears of the user (col. 8, line 59 – col. 9, line 3).

Regarding claim 3, Rallison et al. discloses all the limitations as previously discussed with respect to claim 1 including that the pair of acoustic transducers are speakers provided at positions close to the ears of the user (col. 8, line 59 – col. 9, line 3).

Regarding claim 4, Rallison et al. discloses all the limitations as previously discussed with respect to claim 1 including that the detection means comprises a sensor mounted on the head of the user and a conversion unit for converting a detection signal generated by the sensor into a signal representing the orientation of the head of the user (col. 17, lines 23-30 – it is inherent that there is a detection means device in order to display the correct image according to the user's orientation).

Regarding claim 5, Rallison et al. discloses all the limitations as previously discussed with respect to claim 1 including that the image-changing means is a cut-out circuit for extracting a video signal representing an image stretched over a visual-field range visible to the user via the head-mounted display from a video signal representing an image stretched over a range wider than the visual field range in accordance with the orientation of the head of the user (col. 17, lines 23-30 – it is inherent that the image-changing means has a cut-out circuit in order to display the correct portion of the scene detected by the orientation sensor in order to create the simulated environment because the scene that is saved would encompass 360 degrees in order to allow the user to be able to move any way they wanted).

Regarding claim 6, Rallison et al. discloses all the limitations as previously discussed with respect to claim 1 including that the image-changing means is a cut-out circuit for extracting a video signal representing an image stretched over a visual-field range of the user from a video signal representing an image

stretched over a 360-degree surrounding the user in accordance with the orientation of the head of the user (col. 17, lines 23-30 – it is inherent that the image-changing means has a cut-out circuit in order to display the correct portion of the scene detected by the orientation sensor in order to create the simulated environment because the scene that is saved would encompass 360 degrees in order to allow the user to be able to move any way they wanted).

Regarding claim 7, Rallison et al. discloses all the limitations as previously discussed with respect to claim 1 including that the image-changing means is a video synthesis circuit for synthesizing video signals representing images stretched over a visual-field range visible to the user via the head-mounted display in accordance with the orientation of the head of the user (col. 17, lines 23-30 – it is inherent that for a scene that encompasses 360 degrees allowing the user to move any way they wanted would involve synthesizing several images together to encompass 360 degrees because not one camera can take one image that would provide enough information for the user to be able to move the 360 degrees).

Regarding claim 8, Rallison et al. discloses all the limitations as previously discussed with respect to claim 1 including that the sound-image localization processing means performs sound-image localization processing based on transfer functions from a sound-image localized position of the audio signal to ears of the user to produce the audio signal; and the audio signal is supplied to the pair of acoustic transducers as if the audio signal were localized at the

sound-image localized position (col. 17, lines 23-30 – it is inherent to have sound that is localized according to the scene in order to simulate an environment the user is in. It is inherent it is localize from Figs. 17A and 22 where there are separate left and right outputs for the sound).

Regarding claim **9**, Rallison et al. discloses all the limitations as previously discussed with respect to claim 1 including that the sound-image localization processing means converts an audio signal representing a sound covering a 360-degree range surrounding the user into an audio signal that is supplied to the pair of acoustic transducers as a reproduction signal as if the reproduced sound image were localized outside the head of the user (col. 17, lines 23-30 – it is inherent to have sound that is localized according to the scene in order to simulate an environment the user is in and allowing the user to move 360 degrees to view the entire scene. It is inherent it is localize from Figs. 17A and 22 where there are separate left and right outputs for the sound).

Regarding claim **10**, Rallison et al. discloses all the limitations as previously discussed with respect to claim 1 including that the video signal supplied to the head-mounted display and the audio signals supplied to the acoustic transducers are reproduced from a recording medium (col. 32, lines 27-59).

Regarding claim **11**, Rallison et al. discloses all the limitations as previously discussed with respect to claim 1 including that the video signal supplied to the head-mounted display and the audio signals supplied to the

acoustic transducers are received from a network in real time (col. 31, lines 17-21).

Regarding claim 12, Rallison et al. discloses an audio and video reproduction apparatus, comprising: a head mounted display that converts a video signal into an image to present to a user (Figs. 1 and 17A; abstract); a pair of acoustic transducers that converts an audio signal into a sound to present to the user (52a and 52b); magnetic or gyroscopic head orientation detector that determines changing orientation of the user (100) (col. 3, lines 5-10); image-changing processor configured to change the video signal supplied to the head-mounted display as a function of the changing orientation of the head of the user as detected by the head orientation detector (col. 17, lines 23-30); and sound-image localization processor configured to change a sound-image localized position of the audio signal reproduced by the acoustic transducers as a function of the changing orientation of the head of the user as detected by the head orientation detector (505 and 503) (Fig. 17A displays audio inputs and outputs going to the right and left ear, therefore simulating the environment according to the user's orientation – col. 17, lines 23-30).

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Flood (U.S. Patent 6,630,915) discloses a real-time virtual-reality simulation system for providing three-dimensional real-time video and stereo audio stimuli to a mobile user.
- b. Ebersole et al. (U.S. Patent 7,110,013) discloses a system for creating an augmented reality display coupled with a firefighter's self-contained breathing apparatus (SCBA) mask. A key aspect of the invention is specially mounted head phones that can be used to project appropriate sounds into the firefighter's ears according to the user's head motion.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heather R. Jones whose telephone number is 571-272-

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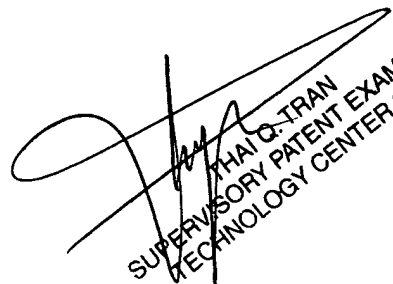
7368. The examiner can normally be reached on Mon. - Thurs.: 7:00 am - 4:30 pm, and every other Fri.: 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thai Tran can be reached on 571-272-7382. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Heather R Jones  
Examiner  
Art Unit 2621

HRJ  
October 16, 2006

  
THAI Q. TRAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600